PROCÉDURE D'ÉVALUATION D'UN SYSTÈME PARE-AIR CONFORMÉMENT AU GUIDE TECHNIQUE DU CCMC

PROGRAMME DE LA PRÉSENTATION

- EXIGENCES ET RECOMMANDATIONS DU CODE DE CONSTRUCTION DU QUÉBEC 2005;
- CONCEPT D'UN SYSTÈME PARE-AIR;
- PROCÉDURES D'ÉVALUATION SELON LE GUIDE TECHNIQUE DU CCMC;
- EXIGENCES TECHNIQUES DU GUIDE;
- PROCÉDURE D'ESSAI;
- NORMES ULC ET ASTM.

EXIGENCES ET RECOMMANDATIONS DU CODE DE CONSTRUCTION DU QUÉBEC 2005

- LA PARTIE 5 «SÉPARATION DES MILIEUX DIFFÉRENTS»:
 - Exige que les matériaux d'étanchéité à l'air prévus pour constituer la principale résistance aux fuites d'air présentent un taux de perméabilité à l'air d'au plus 0,02 L/s-m², mesuré sous une pression différentielle de 75 Pa. (section 5.4.1.2)
- L'ANNEXE À LA PARTIE 5:
 - Recommande pour les systèmes pare-air un taux de perméabilité maximal en fonction des conditions hygrométrique maintenues à l'intérieur du bâtiment. (voir tableau A-5.4.1.2 1) et 2))

Tableau A-5.4.1.2. 1) et 2)
Taux de perméabilité maximal recommandé

Humidité relative du côté chaud, à 21 °C	Taux maximal de perméabilité recommandé pour les systèmes, en L/ (s . m²) à 75 Pa	
< 27 %	0,15	
27 à 55 %	0,10	
> 55 %	0,05	

CONCEPT D'UN SYSTÈME PARE-AIR

- UTILISER DES MATÉRIAUX AYANT UNE FAIBLE PERMÉABILITÉ À L'AIR;
- ASSURER LA CONTINUITÉ DE L'ÉTANCHÉITÉ DE L'ENSEMBLE DES COMPOSANTES;
- ASSURER LA RIGIDITÉ ET LA RÉSISTANCE DU SYSTÈME;
- ÊTRE DURABLE.

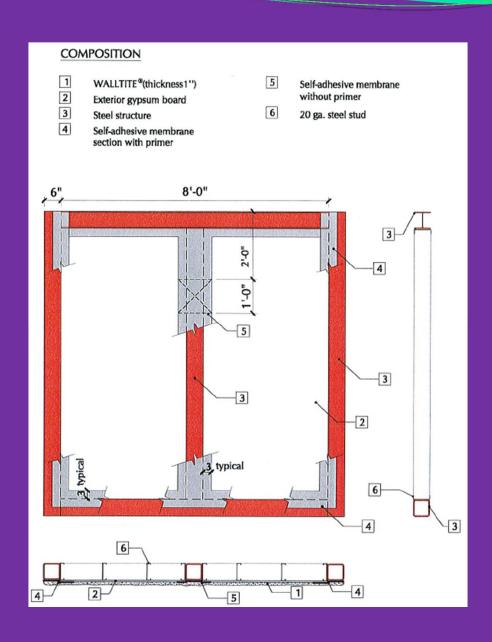
PROCÉDURES D'ÉVALUATION SELON LE GUIDE TECHNIQUE DU CCMC

- DEMANDE D'ÉVALUATION AU CCMC ET ANALYSE DES EXIGENCES;
- DÉFINITION DU PROGRAMME D'ESSAI;
- ÉCHANTILLONNAGE ALÉATOIRE ET PAR UN TIERS INDÉPENDANT DES MATÉRIAUX MISE À L'ESSAI;
- MISE À L'ESSAI ET PRODUCTION D'UN RAPPORT D'ESSAI AU CCMC;
- DÉMONSTRATION D'UN PROGRAMME DE CONTRÔLE DE LA QUALITÉ EN USINE;
- MISE EN PLACE D'UN PROGRAMME DE SURVEILLANCE EN CHANTIER;
- PRODUCTION D'UN MANUEL D'INSTALLATION.

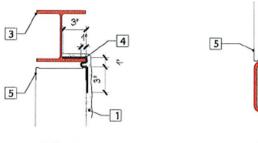
EXIGENCES TECHNIQUES DU GUIDE

- DÉTAILS DE CONSTRUCTION VS CONTINUITÉ DE L'ÉTANCHÉITÉ DU SYSTÈME PARE-AIR;
- DÉFINIR LA CONFIGURATION DES ÉCHANTILLONS D'ESSAI;
- DÉFINIR LE TAUX DE PERMÉABILITÉ À L'AIR;
- EXIGENCES STRUCTURALES;
- EXIGENCES DE DURABILITÉ;
- AUTRES EXIGENCES.

• PRÉPARATION DES MURS ÉCHANTILLONS;

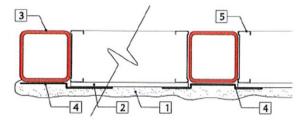


- WALLTITE®(thickness 1")
- Exterior gypsum board
- Steel structure
- 1 2 3 4 Self-adhesive membrane section with primer
- 5 20 ga. Steel stud



Wall upper section

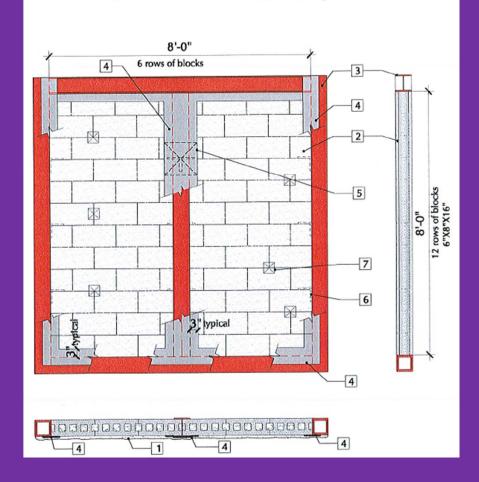
Wall lower section



Plan view of wall

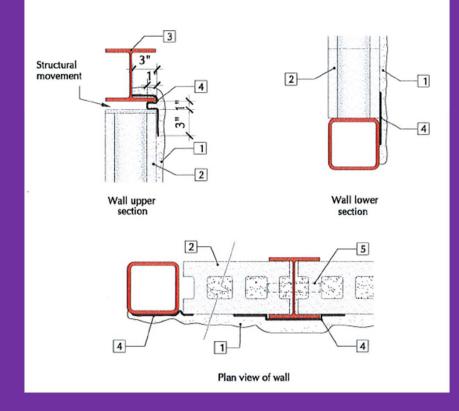


- 1 WALLTITE (thickness 1")
- Concrete blocks
- Steel structure
- 2 3 4 Self-adhesive membrane with primer
- 5 Self-adhesive membrane section without primer
- 6 Structural tie 24" o.c. (typical)
- 7 Mortar joint defect





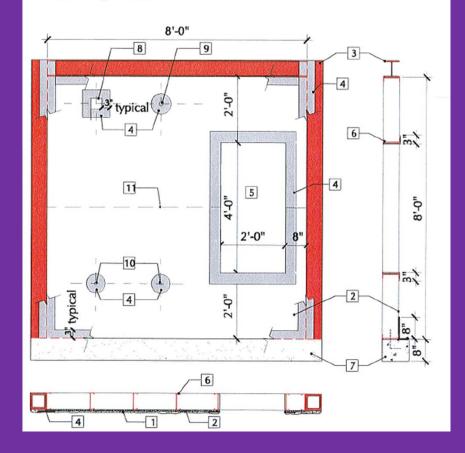
- 1 WALLTITE®(thickness 1")
- 2 Concrete blocks
- 3 Steel structure
- Self-adhesive membrane section with primer
- 5 Structural tie 24" o.c. (typical)





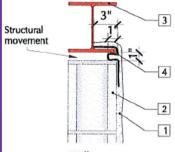
- 1 WALLTITE®(thickness 1")
- 2 Exterior gypsum board
- 3 Steel structure
- Self-adhesive membrane with primer
- 5 Opening
- 6 20 ga. steel stud

- Concrete footing 8" x 10"
 with reinforcement
- B Galvanized steel duct 4"x4"
- 9 Steel pipe 1 1/2" dia.
- 10 Electrical steel conduit 1" dia.
- Gypsum board panel joint

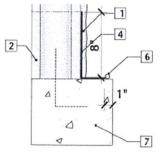


- 1 WALLTITE®(thickness 1")
- 2 Concrete blocks
- 3 Steel structure
- 4 Self-adhesive membrane section with primer
- 5 Opening
- 6 Polymer base caulking strip

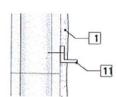
- 7 Concrete footing 8" x 10" with reinforcement
- 8 Foam seal gasket
- 9 Caulking
- Glass fiber
- 11 Mechanical tie



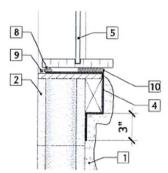
Wall upper section



Wall lower section



Wall section



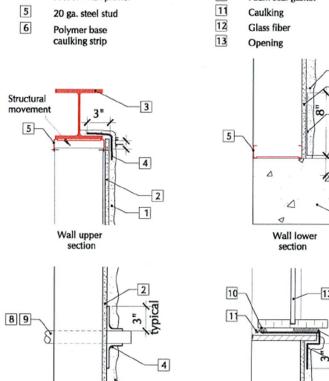
Opening lower section

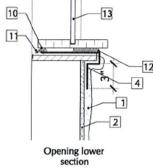
- WALLTITE®(thickness 1")
- 2 Exterior gypsum board
- 3 Steel structure
- 4 Self-adhesive membrane section with primer

Wall section

- 5 20 ga. steel stud

- Concrete footing 8" x 10" with reinforcement
- 8 Galvanized steel duct 4"x4"
- 9 Steel pipe 1 1/2" dia.
- 10 Foam seal gasket
- Caulking

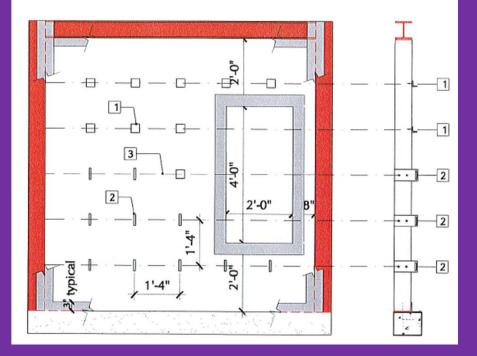




7

- Surface mounted mechanical ties model d/a 213 from "Dur-o-wall" anchored with threaded bolts as per model "Dur-o-pair" from "Dur-o-wall".
- Adjustable mechanical ties integrated in wall framing as per model "Bailey brick connector" 10-18 from "Bailey".
- 3 Gypsum board panel joint.

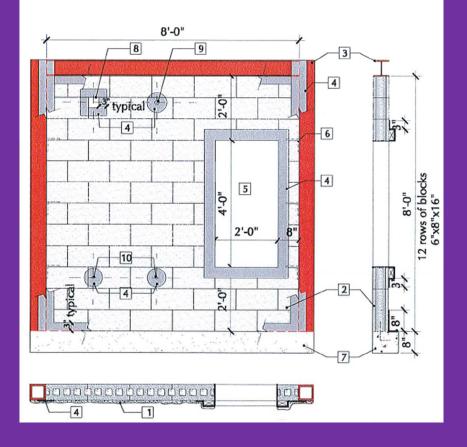
Note: No transition membrane at the perimeter of projected ties of wall sample.





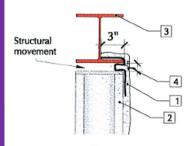
- 1 WALLTITE®(thickness 1")
- 2 Concrete blocks
- 3 Steel structure
- 4 Self-adhesive membrane section with primer
- 5 Opening

- 6 Structural tie 24" o.c. (typical)
- 7 Concrete footing 8" x 10" with reinforcement
- Galvanized steel duct 4"x4"
- 9 10 Steel pipe 1 1/2" dia.
- Electrical steel conduit 1" dia.

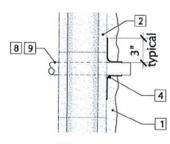


- 1 WALLTITE®(thickness 1")
- 2 Concrete blocks
- 3 Steel structure
- 4 Self-adhesive membrane section with primer
- 5 Opening
- 6 Polymer base caulking strip

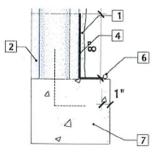
- 7 Concrete footing 8" x 10" with reinforcement
- 8 Galvanized steel duct 4"x4"
- Steel pipe 1 1/2" dia.
- 10 Foam seal gasket
- 11 Caulking
- 12 Glass fiber



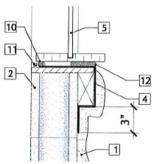
Wall upper section



Wall section



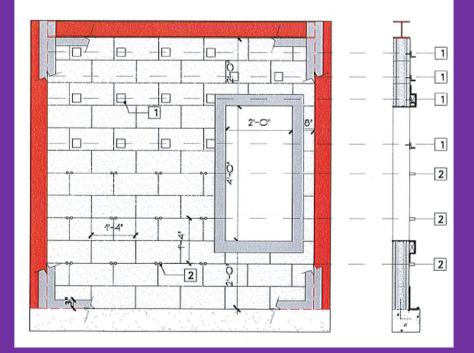
Wall lower section



Opening lower section (wall section)

- Surface mounted mechanical ties model d/a 213 from "Dur-o-wall" anchored with threaded bolts as per model " Dur-o-pair " from "Dur-o-wall".
- Triangular horizontal reinforcement with integrated masonry ties model "Dur-o-eye" from "Dur-o-wall".

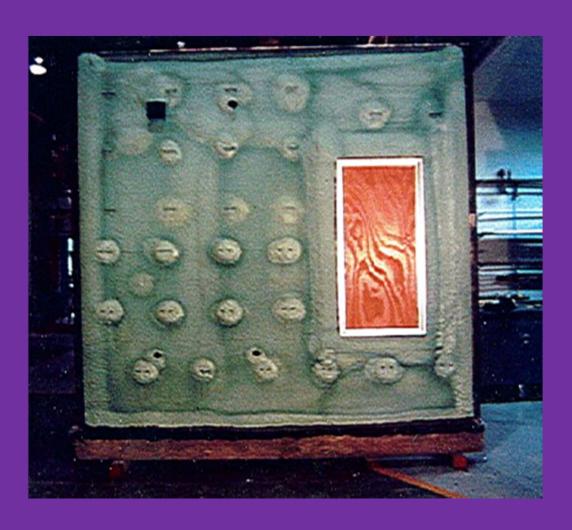
Note: No transition membrane at the perimeter of projected ties of wall sample.



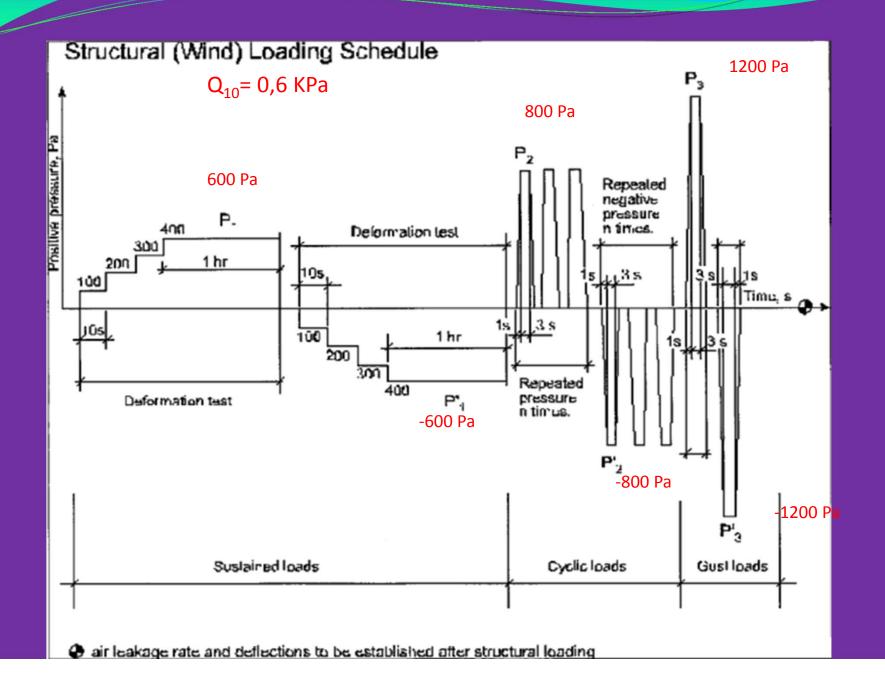








• PROGRAMME D'ESSAIS STRUCTURAUX ET D'ÉTANCHÉITÉ;



• ESSAIS DE DURABILITÉ.

Property	Test Method	Units	Requirements
Thermal Resistance of original board after 90 d conditioning	ASTM C 177 or ASTM C 518 ⁽¹⁾	m²-K/W	Report value
Thermal Resistance after heat aging ⁽³⁾ of weathered ⁽²⁾ samples	ASTM C 177 or ASTM C 518 ⁽¹⁾	m²-K/W	90% Retention
Air permeance test (virgin samples after 90 d conditioning ⁽¹⁾)	ASTM D 726-84 or NRC/Building Research Note No. 227	ml/15s	Report the value
Air permeance test after weathering ⁽²⁾ and heat aging ⁽³⁾	ASTM D 726-84 or NRC/Building Research Note No. 227	ml/15s	≤ 110% of original value

- Thermal testing and conditioning for 90 days at conditions as per CGSB 51.26-M86, sections 7.2 , 7.3.1, and 7.3.2.
- Weathering is performed according to CGSB 37-GP-56M (Par. 7.2.11) modified by using 360 cycles of 2 hours (1 hour irradiation followed by 1 hour of rain cycle). The rain cycle may be eliminated if the product is to be protected in the field from rain during the installation of the air barrier system.
- 3. Heat aging is performed using an air circulation oven operated at :
 - i) for non-accessible ABS 70 ± 2 °C for 336 hours
 - ii) for accessible ABS 70 ± 2 °C for 168 hours.

NORMES ULC ET ASTM

- CAN/ULC-S741-08 «NORME SUR LES MATÉRIAUX D'ÉTANCHÉITÉ À L'AIR»;
- CAN/ULC-S742-10 «NORME SUR LES ASSEMBLAGES PARE-AIR»;
- ASTM E2178 11 «Standard Test Method for Air Permeance of Building Materials»;
- ASTM E2357 11 «Standard Test Method for Determining Air Leakage of Air Barrier Assemblies».

MERCI!

QUESTIONS?